

10

World History
History-Social
Science Standard
10.4.1.



New Imperialism: The Search for Natural Resources

California Education and the Environment Initiative

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The Education and the Environment Curriculum is a cooperative endeavor of the following entities:

California Environmental Protection Agency
California Natural Resources Agency
Office of the Secretary of Education
California State Board of Education
California Department of Education
California Integrated Waste Management Board

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Key Partners:

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Lesson 1 The Hydrogen Highway—Resources for a Revolution

None required for this lesson.

Lesson 2 Natural Resources for an Industrial Economy

Industrialization Links 2

Lesson 3 Perspectives on the Control and Use of Natural Resources

None required for this lesson.

Lesson 4 Tapping the Resources of the Rainforest

None required for this lesson.

Lesson 5 The Tree That Saved an Empire

None required for this lesson.

Lesson 6 Conservation Efforts in British India

None required for this lesson.

Assessments

New Imperialism: The Search for Natural Resources—
Traditional Unit Assessment Master. 7
Newspaper Article—Alternative Unit Assessment Master. 10



Ecosystem Goods: Coal

- Coal was used in smelting iron ore to make steel, an essential ingredient for industries like shipbuilding and railways.
- Coal is a fossil fuel—meaning that it is formed by natural processes over a long period of time. Coal is considered nonrenewable because it takes such a long time for nature to make more.
- Coal mining increased a hundredfold during the 19th century. Coal was primarily used in steam-powered ships and railroad engines.
- Burning coal often causes air pollution.
- Burning coal releases carbon dioxide into Earth's atmosphere and can increase the rate of global warming and lead to global climate change.

Ecosystem Goods: Wood

- By the end of the 18th century, coal replaced wood as the primary fuel for iron smelting. Iron and steel replaced wood as main building materials.
- The use of paper products, such as newspaper, books, and toilet paper greatly increased as a result of the Industrial Revolution.
- Urbanization led to more demand for wood for the construction of homes and to make paper products.
- Machinery made from iron and powered by coal (such as steamboats and railroads) increased access to forests. This revolutionized transportation of timber to manufacturing centers and the delivery of finished products to markets.



Ecosystem Goods: Cotton

- Cotton was a catalyst for the Industrial Revolution in Britain.
- Mechanized cotton spinning and weaving increased the amount of cloth that could be produced. This increased the need for raw cotton.
- Britain's need for access to Indian and African markets to sell cotton fabric influenced its role as an imperial sea power and led to colonization efforts in both regions.
- Cotton cultivation requires temperate climates and well-distributed rainfall. Where these conditions do not exist, irrigation is required.

Ecosystem Goods: Copper

- The use of electrical power in the 1880s increased demand for copper. It is an excellent conductor of electricity and is a logical element to use in power lines.
- Copper smelting techniques used into the 20th century released sulfur into the atmosphere. This created "copper smoke" that damaged crops and animals.
- Groundwater flowing through abandoned copper mines can become tainted with acid. This can affect animal and plant life that comes in contact with the water. It also affects water quality in underground reserves.
- The Second Industrial Revolution made European and U.S. factories reliant on copper, which was not available locally in Europe.



Ecosystem Goods: Medicinal Plants

- Medicinal plants are used to treat human illnesses.
- About half of all prescriptions in the United States and Europe contain at least one ingredient derived from plants.
- Deforestation dramatically reduces the varieties of plants in a specific area. It can directly eliminate medicinal plants, some of which might not have been catalogued yet.
- Quinine comes from the bark of the *Cinchona* tree from tropical South America. It was an important treatment for malaria when European countries colonized Africa in the 19th century.

Industrialization: Large-Scale Irrigation

- Irrigation is the artificial supply of water to crops, such as cotton.
- By the end of the 20th century, 40% of food worldwide was watered by irrigation.
- Nineteenth-century irrigation was the first to use large-scale dams and irrigation canals.
- Between 1870 and 1900, the British tripled the area irrigated by the Indus River in India.
- Industrial irrigation can lead to the buildup of salts in the soil to damaging levels, a process called salinization. This can result in degraded soils and reduced agricultural productivity.

Industrialization: Electricity

- Electricity was a new source of cheap energy in the 19th century.
- Prior to the use of electricity, factories needed to be near running water. With electricity, manufacturers no longer had to be close to an energy source.
- The transport of electrical power long distances required power lines made of copper.

Industrialization: Transportation Networks

- Steamships, railways, and telegraph networks increased the movement of people, goods, and money all over the world.
- Railways and rivers allowed trains and steamships to break into the interior regions of Africa, Asia, and Latin America. This made natural resources in the colonies more available to imperial powers.

Industrialization: Telegraph Networks

- The telegraph was a revolutionary way to communicate over long distances.
- Telegraph lines were often built next to railway lines for ease of construction.
- A telegraph cable was used successfully in the mid-19th century to relay messages between North America and Europe.
- The cable required copper, hemp, iron, and a natural latex from a tropical tree native to Southeast Asia.
- The telegraph was used throughout the industrial nations; use extended to some of the colonies as well.

Industrialization: Urbanization

- Urbanization is the process in which increasing numbers of people live in cities rather than rural areas.
- The Industrial Revolution required increased human labor, so people migrated from farms to cities throughout northern Europe.
- Technological advances in the cotton and iron industries contributed to urbanization in Europe.
- By 1900, 80% of Britain's population, 60% of Germany's population, and 50% of the U.S. population lived in cities.
- Urbanization increases human pressures on the local environment, such as air and water pollution.
- Today, more than 50% of the world's 6 billion people live in cities.

Challenges: Air and Water Pollution

- Nineteenth century industrialization produced record amounts of air pollution from burning coal in textile mills and steel plants.
- In the 20th and 21st centuries, air pollution is closely associated with urbanization because of the high use of automobiles in cities.
- Severe air pollution can make some environments too toxic to support vegetation.
- Water pollution in the 19th century was largely the product of natural resource exploitation, industrialization, urbanization, and agriculture.

Challenges: Deforestation

- Deforestation is the process of clearing an area of trees.
- Although the deforestation of tropical regions is a large problem today, most of the world's deforestation took place before 1950.
- In tropical forests, harvesting tree crops like the rubber tree (used to tap latex to make rubber products) eventually led people to clear the land and replace the original forest with plantation crops such as sugar and coffee.
- In south and southeastern Asia between 1860 and 1950, 278,000 square kilometers (approximately 273 square miles) of forests were destroyed for cropland.

Challenges: Desertification and Salinization

- Desertification (derived from the word “desert”) is the degradation of dry land. This problem can be caused by climatic factors and human activities. These activities include over-cultivation, water diversion practices, overgrazing, deforestation, and poor irrigation.
- Salinization is the buildup of mineral salts in soil. In excess, salts can become toxic to plant life. Salinization happens naturally but can also result from poor irrigation practices and other human activities.
- Salinization can make the soil infertile because plants cannot cope with the high levels of salt in the soil.

Challenges: Disease

- Urbanization in the 19th century brought with it crowd-related disease problems.
- Irrigation techniques can also create breeding grounds for disease-carrying organisms.
- Malaria is transmitted by mosquitoes. The use of quinine to treat malaria greatly reduced the impact of the disease on humans in the 19th century.

Challenges: Global Climate Change

- Global climate change refers to long-term changes in weather patterns, most recently resulting from increases in Earth’s average temperature (global warming).
- Most scientists believe that Earth’s climate is changing due to human actions such as burning fossil fuels (for example, coal), which is accelerating the natural process of global warming.
- Global warming can result in flooding, severe droughts, and storms. It can also affect agricultural production as well as threaten human populations in the path of extreme weather events.
- Population growth, and thus the increased consumption of resources like fossil fuels, has contributed to global warming.

Ecosystem Services: Carbon Sequestration

- Carbon sequestration is the process in which carbon in Earth’s atmosphere is absorbed and stored in forests, soil, and the ocean.
- Oceans, forests, and soil “clean” Earth’s atmosphere of extra carbon. Scientists therefore call these systems carbon “sinks.”
- Deforestation and desertification can reduce the effectiveness of carbon “sinks.”
- Naturally occurring carbon storage can reduce greenhouse gases that contribute to global warming.
- Fossil fuel-based industrialization has produced a surplus of carbon dioxide in Earth’s atmosphere, contributing to global warming.

<div data-bbox="68 210 142 289"></div> <div data-bbox="167 315 628 396">Ecosystem Services: Nutrient Dispersal and Cycling</div> <ul style="list-style-type: none"> ■ Nutrient cycling is the process whereby nutrients, such as carbon and nitrogen are recycled within a natural system. ■ Soil, for example, recycles and retains nutrients from decomposition and makes them available for plant growth. ■ Soil takes hundreds of years to build up this fertility and only a few years to lose it. 	<div data-bbox="792 210 831 289"></div> <div data-bbox="847 315 1318 396">Ecosystem Services: Pest and Disease Control</div> <ul style="list-style-type: none"> ■ Pests compete with humans for food, timber, and cotton and other fibers. Pests include insects, rodents, viruses, and fungi, among other organisms. ■ Perhaps 99% of potential crop pests are controlled by natural enemies, such as birds, ladybugs, fungi, and other types of organisms. ■ Monoculture, or the planting of a single crop over a large area, can reduce the controlling effects of natural pest enemies. Thus, humans have tried to control pests artificially through the use of pesticides. These pesticides can accumulate in water, soil, and the air, where they can threaten human and animal health.
<div data-bbox="68 1081 142 1161"></div> <div data-bbox="167 1142 698 1224">Ecosystem Services: Maintenance of Biodiversity</div> <ul style="list-style-type: none"> ■ Biodiversity is a measure of the variety of life forms within a given natural system. ■ The tropical regions and Africa and Latin America are the most biologically diverse places in the world. They have therefore attracted the attention of outsiders for centuries. ■ Many goods, such as natural rubber, spices, <i>Cinchona</i> and other medicinal plants, woods, and fibers are found in tropical regions. 	<div data-bbox="792 1081 831 1161"></div> <div data-bbox="847 1142 1380 1224">Ecosystem Services: Mitigation of Floods and Droughts</div> <ul style="list-style-type: none"> ■ Most rainwater is soaked up by soils and gradually distributed to plants and waterways (for example, streams, rivers, lakes). ■ The roots of plants and trees hold the soil in place and shield it from the harmful effects of flooding, such as erosion. ■ When the land is cleared of vegetation, rain turns soil to mud that “clogs” drainage, leading to erosion. ■ Vegetation acts as a giant pump, returning water from the ground to the atmosphere. ■ Erosion can damage natural and human-made waterways (for example, irrigation systems) and can disrupt nutrient cycling and dispersal.

Name: _____

Part 1

Instructions: Select the best answer for each. (2 points each)

1. New Imperialism in the late 19th and early 20th centuries sought to _____.
 - a. protect oil reserves from running out
 - b. keep the populations in certain parts of the world from becoming too large
 - c. ensure access to the natural resources needed by industrializing nations
 - d. All of the above.
2. One of the first countries to industrialize was _____.
 - a. South Africa
 - b. Great Britain
 - c. India
 - d. China
3. What effect did urbanization have on the demand for natural resources?
 - a. Demand increased.
 - b. Demand decreased.
 - c. Demand stayed the same.
 - d. The change in demand was not noted.
4. All of the following show the use of natural resources in industrialization except _____.
 - a. fuels for industrial machinery
 - b. medicinal remedies for epidemic diseases
 - c. food for growing populations in urban centers
 - d. using military force to colonize a location.
5. Which of the following terms was invented by a British official in reaction to the Empire's use of natural resources in India?
 - a. erosion
 - b. denudation
 - c. conservation
 - d. fuel-cell
6. How did quinine contribute to the expansion of imperialism in the 19th century?
 - a. It decreased the mortality rate of European explorers, colonizers, and soldiers.
 - b. It provided a new transportation method for navigating the rivers.
 - c. It allowed Europeans to easily defeat any colonists that resisted occupation.
 - d. It helped the administrators in the colonies and the imperial leaders to communicate.

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Name: _____

7. What led to the decrease in rubber production in the Amazonian Basin?
 - a. The demand for rubber decreased in the United States.
 - b. A plant disease destroyed the rubber trees.
 - c. Revolts by colonized peoples stopped production.
 - d. The laborers lost their tools and could not tap the trees.
8. An ecosystem good in high demand during the Industrial Revolution was _____.
 - a. cotton
 - b. hydrogen
 - c. cheap labor
 - d. colonies
9. All of the following influenced decisions about colonization in the era of New Imperialism EXCEPT _____.
 - a. economics
 - b. politics
 - c. conservation
 - d. social attitudes
10. Which is an example of conservation practiced in both British India in 1900, and contemporary California?
 - a. deforestation of large areas of land
 - b. switching from fossil fuels to alternative fuel sources
 - c. establishing a monopoly over a resource in high demand
 - d. the government regulating the use of resources

Part 2

Instructions: Read each question and write an organized answer. (10 points each)

11. How did the increased desire of some countries to create industrial economies lead to imperialism and colonialism?

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12. Explain the role that two of the following played in making decisions about the control and use of natural resources in the era of New Imperialism.

- [illegible]

Name: _____

Instructions: Your newspaper editor has sent you off to one of the colonies to interview a leading European colonial administrator about the economics of colonial life. Armed with a month's supply of quinine and your favorite notebook, you set off in search of a colonial administrator who will sit down and chat with you. You are really nervous because your editor gave you few specifics besides, "Find out about all those natural resources!" You must ask the right questions to truly understand the relationship your country has with the colony. If successful, your editor has promised a front-page feature article!

Instructions:

1. Use the information you gathered in the preceding lessons (for example, **Evaluating the Need for Natural Resources in Industrial Economies** in Lesson 2, **Opinions about Control and Use of Natural Resources** in Lesson 4) to think of four questions to ask the colonial administrator.

To help you write your questions, here is a summary of what we examined in the unit:

- the role of natural resources in fueling industrial economies
- the way in which the extraction, transport, and consumption of resources affected the natural systems and economies in the colonies
- the political, social, environmental, and economic roles that influenced decisions about the control and use of natural resources
- government policies that controlled some aspect of natural resources

2. Pretend that you are the colonial administrator, and give a detailed answer for each question.
3. Write an interview script.
4. Write a newspaper article that provides your fellow citizens back home with a glimpse of the relationship between the conveniences of life and the natural resources in the colonies. You should use the interview to explain your country's reliance on the colony. Your article should be between 150 and 200 words.

Here are the parts of a basic newspaper article:

- headline
- guiding question (What is the purpose of writing this article for your audience?)
- the five Ws (who, what, where, when, and why)
- catchy details
- conclusion

5. Look at the **Newspaper Assignment Scoring Tool** to ensure that you have completed the assignment as specified. Attach the scoring tool to your final draft.

Your article is due on: _____

Name: _____

Newspaper Article Scoring Tool

	Full credit looks like:	My points	Points Possible
Interview questions	Four unique questions that gather information about the interviewee's personal and professional relationship with the economics of the colony.		15
Interview answers	Four detailed answers that summarize what you have learned in this unit		20
Article headline	Wording that catches the attention of the reader and relates to the topic.		5
Article thesis or argument	Provides a thesis, or overall argument about the relationship between natural resources, industrial nations, and industrial nations' colonies.		10
Article information	Provides readers with relevant details at the beginning of the article (answers who, what, where, when, and why).		20
Catchy details	Provides information beyond the basics including: statistics, quotes, images, maps, and/or charts, which support the overall point.		20
Conclusion	Offers readers a conclusion to the story (provides insight to the guiding question).		10
Total:			100

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